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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,672	10/16/2003	Bruce B. Doris	FIS920030247US1	2671
29625	7590	04/28/2004	EXAMINER	
MCGUIRE WOODS LLP 1750 TYSONS BLVD. SUITE 1800 MCLEAN, VA 22102-4215			ISAAC, STANETTA D	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/605,672	Applicant(s) DORIS ET AL.	
	Examiner Stanetta D. Isaac	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 4 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 4 and 13 objected to because of the following informalities: Si-SO₂ should be Si-O₂. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Jin et al. US Patent 5,940,716.
4. Jin discloses the semiconductor structure as claimed. See **FIGS. 1-24** where Jin teaches a semiconductor structure formed on a substrate, comprising a shallow trench isolation having at least one overhang **108C** selectively configured to prevent oxidation induced stress in a determined portion of the substrate.
5. Pertaining to claim 4, Jin teaches the semiconductor structure of claim 1, wherein: the determined portion of the substrate is a Si-SiO₂ interface adjacent to the shallow trench isolation; and the at least one overhang extends beyond the Si-SiO₂ interface, preventing oxidation at or near the Si-SiO₂ interface.
6. Pertaining to claim 12, Jin teaches the semiconductor structure of claim 1, wherein the overhang includes a T-shaped structure.

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7. Pertaining to claim 13, Jin teaches the semiconductor structure of claim 12, wherein the determined portion of the substrate is a Si-SiO₂ interface adjacent to the shallow trench isolation.

8. Pertaining to claim 14, Jin teaches the semiconductor structure of claim 13, wherein the overhang includes a horizontal portion that extends beyond the Si-SiO₂ interface by about 0.01 microns to 0.5 microns.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 3, 5-11, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trivedi US Patent 6,583,060 in view of Jin et al. US Patent 5,940,716.

11. Trivedi discloses the semiconductor structure as claimed. See **FIGS. 1-15**, where Trivedi teaches a semiconductor structure being a p-channel and n-channel field effect transistors, however fails the step comprising a shallow trench isolation having at least one overhang. See **FIGS. 1-24** and (**col.1 lines 1-8; col. 2 lines 29-34**), where Jin teaches the shallow trench isolation having at least one overhang. In view of Jin, it would have been obvious to one of ordinary skill in the art to incorporate teachings of Jin into Trivedi semiconductor structure because Jin teaches improved methods of the fabrication of electrically isolated semiconductor active regions in a semiconductor substrates which are less susceptible to edge defects.

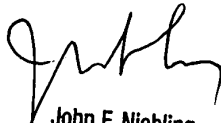
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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanetta D. Isaac whose telephone number is 571-272-1671. The examiner can normally be reached on Monday-Friday 9:30am -6:30pm.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 571-272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stanetta Isaac
Patent Examiner
April 22, 2004


John F. Niebling
Supervisory Patent Examiner
Technology Center 2800